

PA

Needed for Oct shipment
of 13 perian

Work Order ID 149876-1

149876

August 05, 2016 2:26:58 PM

Item ID: D5090-041 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Duct Assembly
 Start Date: 10/5/2016 Start Qty: 12.00 ~~10~~ *12* ~~10~~ ^{LM} Cust Item ID:
 Required Date: 10/11/2016 Req'd Qty: 12.00 ~~10~~ *12* ~~10~~ ^{LM} Customer:
 Reference:

Approvals: Process Plan: SU Date: AUG 05 2016 Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr								
D5090	C								
110		0.00	SEP 19 2016	DAS 6 8-89	Pick kit 10x				
110									
Small Fab		0.32							
Small Fab	Memo								
	1- CHECK MESUREMENTS BEFORE ASSEMBLING BRACKETS AS PER DWG BY PUTING CLEKOS.								
	2- ASSEMBLE AS PER DWG AND FILL UPPER AND LOWER GAPS AS SHOWN ON DWG WITH PROSEAL OR SIKAFLEX. PROSEAL BATCH#: _____ OR SIKAFLEX BATCH: <u>M134407</u>								
120	QC5- Inspect part completeness to step on W/O	0.00							
120									
QC	Memo	0.04							
Quality Control									

10x
10 FF
SEP 27 2016
DAS
38
9-89
SEP 27 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐				
OTHER : _____					

Work Order ID 149876

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149876

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>Sp</u>	0.00							
130									
Packaging	Memo	0.02				10	SEP 27 2016		DAS 6 9-89
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
140									
QC	Memo	0.20							10/9/27 JF
Quality Control									

DAS
21
9-89

SEP 27 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval		
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Picklist Print

August 05, 2016 2:26:58 PM

Page 1

Work Order ID: 149876

149876

Parent Item: D5090-041

D5090-041

Parent Item Name: Duct Assembly

Start Date: 10/5/2016

Required Date: 10/11/2016

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP REV:A 14.06.18 NEW ISSUE DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D5090-1 *D5090-1* Bracket		Manufactured	No				Each	8.0000		2420			DAS 6 9-89
									**	2 x 3144645		179872x12	
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					ST611			8					
					145770			8		6			
D5090-3 *D5090-3* Bracket		Manufactured	No				Each	10.0000		2420			DAS 6 9-89
									**	149876x16			
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					ST611			10					
					144652			1					
					146037			9		4			
MS20470AD4-5 *MS20470AD4-5* RIVET, UNIVERSAL HEAD		Purchased	No				Each	2,142.000		192160			DAS 36 9-89
									**			16/09/27	
					<u>Location</u>			<u>Loc Qty</u>		<u>Loc Code</u>			
					GA			664					
					m133860			664					
					ST310			1478					
					m134654			1478					

M130133
(160x)

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

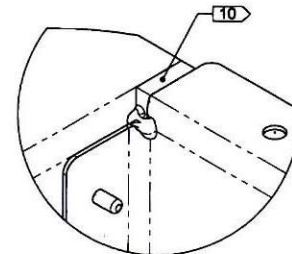
QA Closed: _____ Date: _____

Work Order update only ☐

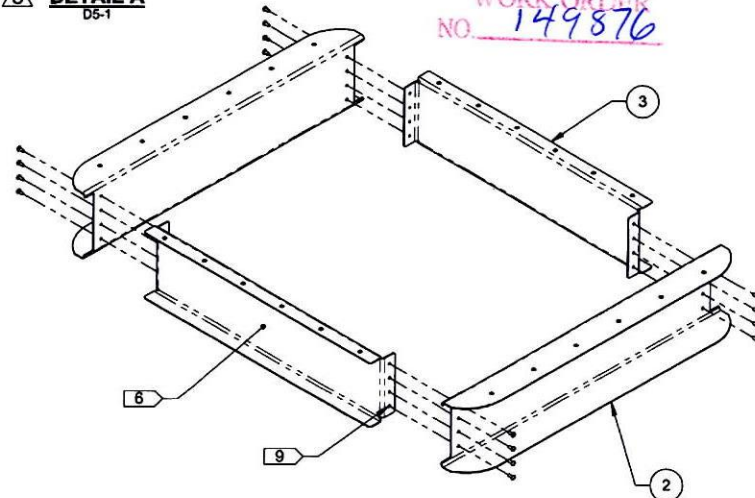
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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								Lead hand / Supervisor Approval Verification	
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Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

ITEM	QTY	P/N	DESCRIPTION
1	X	D5090-041	DUCT ASSEMBLY
2	2	D5090-1	BRACKET
3	2	D5090-3	BRACKET
4	16	MS20470AD4-5	RIVET, SOLID, PAN HEAD

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 149876
AUG 05 2016
SA



DETAIL A
D5-1



D5090-041 DUCT ASSEMBLY

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 AFTER TRANSFER DRILLING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.1
- 7) WEIGHT: 1.85 lbs
- 8) ASSEMBLE D5090-041 WITH CLECO CLAMPS AND VERIFY DIMENSIONS
- 9) INSTALL MS20470AD4-5 RIVETS
- 10) FILL UPPER AND LOWER GAPS WITH SIKAFLEX, PROSEAL 890 OR EQUIVALENT, 4 PL

RELEASED

2015 APR 30

4th E.N. 15-527

APPROVED

C	REVISED D5090-1 DIMENSION (ZN C4-2), REVISED D5090-1 GEOMETRY (ZN C2-2 AND ZN C5-2), REVISED NOTE 7 (ZN A8-2 AND ZN A8-3), REVISED D5090-3 DIMENSION (ZN C3-4), ADDED DETAIL A (ZN C4-1), REVISED NOTE 10 (ZN A8-1), REMOVED FLAG NOTE FROM TOP VIEW (ZN C7-1)	AK	14.11.25
B	REVISED D5090-3 TO ADD HOLES (ZN C6-4, ZN B5-5)	AK	14.06.27
A	NEW ISSUE	AK	14.04.01
REV.	DESCRIPTION	BY	DATE
DESIGN	AK	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D5090 DUCT ASSEMBLY COPYRIGHT © 2014 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DRAWN	AK		
CHECKED	VS		
MFG. APPR.	JLM		
APPROVED	HS		
DE APPR.	DS	REV. C SHEET 1 OF 5 SCALE NTS	
DATE	14.11.25		